

SOME NEW LIGUUS FROM THE FLORIDA EVERGLADES

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The new color forms of *Liguus* described here are to be followed later by a more comprehensive paper dealing with the derivation of these and other forms in the central Everglade region.

LIGUUS CRENATUS BARBOURI, nov. subsp.

Shell: large, subsolid, rather elongate, polished. Whorls seven, rather convex. Tip of spire white (two whorls). Columella white, occasionally truncated, slightly twisted. Palatal lip emarginate, parietal wall calloused. Color whitish to yellow as a ground with the following arrangement of superimposed colors. A very narrow sutural line of white or yellowish bordered superiorly and inferiorly with a band of very dark brown or black usually as a solid band 1 to 4 mm. in width. A band also exists about the central area of the body whorl. Occasionally the bands are broken into a series of dots or squares usually on the last two whorls. Areas on the whorls between the bands are mottled with gray blue and yellowish or whitish. A very few specimens have the body whorl near the palatal area almost entirely blue black. Basal area gray blue to blue black, region bordering columella banded usually with yellowish just within a band of bluish black. Narrow green spiral lines usually present though not readily perceived in the darker forms.

Sculpture consisting of very fine growth lines, rather regularly spaced slightly increasing in size on the later whorls.

Length	Width	Ap. length	Ap. width
51.5	27	24	14.5 mm. Holotype

Holotype: M. C. Z. 84527. Pinecrest region, central Everglades, Fla. Hammock no. 21 (Farnum number). J. N. Farnum, collector.

Remarks: Found in nearly all the hammocks of the Pinecrest region.

LIGUUS CRENATUS FARNUMI, nov. subsp.

Shell: medium to large, rather elongate, rather thin, polished. Whorls seven, slightly convex. First three whorls of spire white. Columella white, twisted and in a few specimens more or less truncated. Palatal lip slightly emarginate. Parietal lip thinly calloused inclined to show pinkish due to the dilution of the brown red color underneath, *not due to special* reddish pigmentation as in the *L. fasciatus* group. Sutural area whitish. Color *pattern* similar to *L. c. barbouri*, color bands of a rather dark mahogany red, areas between of mottled yellow or whitish, and lighter mahogany red. Basal area usually much darker, equalling the color of the juxtasutural bands. Area along the columella sometimes a decided brick red. Spiral line present, those above the middle of the body whorl more intense. Sculpture of fine, regularly spaced growth lines.

Length	Width	Ap. length	Ap. width
47.	25.	23.	13 mm. Holotype

Holotype: M. C. Z. 84586, Pinecrest region, Central Everglades, Florida. Hammock no. 7, (Farnum number). J. N. Farnum, collector.

Remarks: Known only from a single small hammock which is now partially destroyed by fire.

LIGUUS CRENATUS AURANTIUS, nov. subsp.

Shell: Large, solid, slightly elongate, polished. Whorls seven, quite convex, first three or four whorls of spire white. Columella white, twisted, continuous or truncated. Palatal lip emarginate, acute, parietal wall calloused, white. Color very light orange on the fourth whorl, gradually increasing in intensity to a very deep orange in most specimens on the palatal area of the body whorl. This is a wash of color covering the entire whorl though bands of deeper intensity are produced juxtasaturally and on the central area of the body whorl. From few to several green spiral lines are found, more intense above the middle of the whorl. Sculpture of exceedingly fine growth lines.



Length	Width	Ap. length	Ap. width
51.5	29	24	15 mm. Holotype

Holotype: M. C. Z. 84624, Pinecrest region, Central Everglades, Hammock no. 408 (Clench number), Clench and Lermond, collectors. Paratypes M. C. Z. nos. 84016 and 84397. The last collected by J. N. Farnum from the same hammock (Farnum hammock, number 5).

Remarks: C. T. Simpson (1920 Proc. Biol. Soc. Wash., Vol. 33, p. 123) described *L. c. luteus* as "pale yellow to orange." With the material now at hand it seems best to limit *L. c. luteus* to the yellow forms, *L. c. aurantius* named for the orange colored phase. There is no question but that we are dealing with two distinct color races which only occasionally show hybridization. The holotype of *aurantius* was selected from a pure race of this form, no other color form being found on this hammock by Farnum, Clench, Lermond or Allen. Pure races of *L. c. luteus* are quite abundant in the vicinity of Homestead and Royal Palm Park, Florida.

LIGUUS CRENATUS FLORIDANUS, nov. subsp.

Shell: medium to large, globose to elongate, not very solid, polished. Whorls seven, strongly convex. First three to four whorls of spire porcellaneous white. Columella white, occasionally truncated, moderately twisted. Palatal lip emarginate, parietal wall thinly calloused. Ground color amber yellow, rarely whitish. Color pattern as in *L. c. barbouri* and *L. c. farnumi*, the bands mahogany red, mottling either of brownish or gray blue. The mottling color is not well developed, the ground color is decidedly predominating. A bar of brownish or brownish orange is found bordering the columella. Sculpture of only very fine growth lines. Spiral green lines as in other forms.

Length	Width	Ap. length	Ap. width
49.	27.5	23.5	14.5 mm. Holotype

Holotype: M. C. Z. 84559, Pinecrest region, Central Everglades, Hammock no. 8 (Farnum hammock number). J. N. Farnum, collector.

Remarks: A form more or less intermediate in coloration between *L. c. barbouri* and *farnumi* though exhibiting several characters more or less peculiar to itself. It is far more globose than any other form found at Pinecrest and possesses comparatively little mottling of color between the bands of mahogany brown.

Pinecrest is the remnant of a road construction camp established during the construction of the "Tamiami Trail", and today consists of a few houses, a store, and a series of tomato farms. Pinecrest is 46 miles nearly due west of Miami. With two exceptions, all collections were made in hammocks within an area of 7 mi. E of Pinecrest. The two exceptions are a small hammock $\frac{1}{4}$ mi. W and another about 3 mi. SW.

The subspecies herein described were based upon material collected by J. N. Farnum, of Miami, Florida, whose large collection is now possessed by the Museum of Comparative Zoology, and upon collections made by N. W. Leonard and the writer during the latter part of February and the first of March of this year.

SOME PREVIOUSLY UNPUBLISHED FIGURES OF TYPE MOLLUSKS FROM CALIFORNIA

BY LIONEL WILLIAM WIEDEY

A number of species of marine mollusks from the Cretaceous and Tertiary strata of central California have been briefly described, but not figured, by E. B. Hall and A. W. Ambrose.¹ These species were collected in the Mount Hamilton Range and adjoining ranges on the eastern side of San Francisco Bay.

It is generally recognized that the practice of describing species without their being figured is to be severely condemned. Moreover, such an unfortunate procedure im-

¹ Nautilus, Vol. 30, No. 6, 1916, p. 68; No. 7, 1916, p. 77.